

REMARKS

Claims 1 to 20 are currently pending in the present application. No new matter is added.

Claims 1-2, 6 and 8-9 have been rejected under 35 U.S.C. 102(e) as being anticipated by US 2004/0105526 to Zhang et al. Claims 1-2, 6 and 8 include the features of determining a desired position of the imaging unit at which X-ray image data shall be acquired based on a predetermined image acquisition plan and an actual position of an instrument, where the predetermined image acquisition plan is associated with optimal viewing directions and where the actual position of the instrument and the imaging unit is tracked by a tracking device. Claim 9 includes determining a desired position of said imaging unit, at which X-ray image data shall be acquired based on a predetermined image acquisition plan and an actual position of an instrument, tracking the actual position of the instrument and the imaging unit using a tracking device, determining position parameters of the imaging unit for the desired position, and positioning the imaging unit at the desired position by use of the position parameters. Zhang is directed to a digital radiographic imaging system that includes an offset table for determining mechanical and structural offsets which would, if not corrected, misalign the source and detector during use. The Zhang method is intended to correct for inaccuracies in mechanical linkages, examination rooms and other mounting structures, and "drift" induced during use of the system. Zhang does not describe or suggest the features of claims 1-2, 6 and 8-9 described above.

Claims 1, 3-4 and 6-9 have been rejected by the Office Action under 35 U.S.C. 102(e) as being anticipated by US 6,920,347 to Simon, et al. Claims 1, 3-4 and 6-8 include the features of determining a desired position of the imaging unit at which X-ray image data shall be acquired based on a predetermined image acquisition plan and an actual position of an instrument, where the predetermined image acquisition plan is associated with optimal viewing directions and where the actual position of the

instrument and the imaging unit is tracked by a tracking device. Claim 9 includes determining a desired position of said imaging unit, at which X-ray image data shall be acquired based on a predetermined image acquisition plan and an actual position of an instrument, tracking the actual position of the instrument and the imaging unit using a tracking device, determining position parameters of the imaging unit for the desired position, and positioning the imaging unit at the desired position by use of the position parameters. Simon is directed to a surgical navigation system for the storage and measurement of trajectories for surgical instruments. The Simon system provides for an icon representing the real-time trajectory of a tracked instrument to be overlaid on one or more pre-acquired images of the patient. The Simon navigation system can also store multiple trajectories of the instrument and create a static icon representing each saved trajectory for display. However, Simon does not include the features described above for claims 1, 3-4 and 6-9. The Simon navigation system shows potential instrument trajectories but the desired position of the imaging device is not determined and manipulated by the system.

Claims 1-2, 5 and 8-9 have been rejected under 35 U.S.C. 102(e) as being anticipated by US 2003/0108154 to Schmitt. Claims 1-2, 5 and 8 include the features of determining a desired position of the imaging unit at which X-ray image data shall be acquired based on a predetermined image acquisition plan and an actual position of an instrument, where the predetermined image acquisition plan is associated with optimal viewing directions and where the actual position of the instrument and the imaging unit is tracked by a tracking device. Claim 9 includes determining a desired position of said imaging unit, at which X-ray image data shall be acquired based on a predetermined image acquisition plan and an actual position of an instrument, tracking the actual position of the instrument and the imaging unit using a tracking device, determining position parameters of the imaging unit for the desired position, and positioning the imaging unit at the desired position by use of the position parameters. Schmitt is directed to a medical imaging device with a memory device wherein images can be stored in electronically readable form. The images can be X-ray images registered in earlier

examinations or images that simulate X-ray images. A selection device reads out one of the stored images out from the memory device dependent on a desired examination region of the patient and displays it on a display device before the examination of the examination region with X-rays. The operating personnel, possibly in conjunction with a control functionality of the examination device are thus provided with a visualization of an X-ray image to be anticipated. Schmitt does not describe or suggest the features of claims 1-2, 5 and 8-9 described above.

Claims 1-2 and 4-9 have been rejected under 35 U.S.C. 102(e) as being anticipated by US 6,491,429 to Suhm. Claims 1-2 and 4-8 include the features of determining a desired position of the imaging unit at which X-ray image data shall be acquired based on a predetermined image acquisition plan and an actual position of an instrument, where the predetermined image acquisition plan is associated with optimal viewing directions and where the actual position of the instrument and the imaging unit is tracked by a tracking device. Claim 9 includes determining a desired position of said imaging unit, at which X-ray image data shall be acquired based on a predetermined image acquisition plan and an actual position of an instrument, tracking the actual position of the instrument and the imaging unit using a tracking device, determining position parameters of the imaging unit for the desired position, and positioning the imaging unit at the desired position by use of the position parameters. Suhm is directed to a method for guiding a C-arm X-ray device using the steps of: determining the position of a plane of projection; measuring the position and orientation of the reference element at the bone or bone joint; referencing the position of the plane of projection to the position of the reference element; measuring the actual position and orientation of the displaced bone; determining a deviation of the actual position of the reference element; determining the new position of the C-arm X-ray device in order to reset the plane of projection; and guiding the C-arm X-ray device in the new position by means of automatic controlling means. Suhm makes no mention of tracking an instrument or determining a desired position of the imaging unit based on an actual position of an

instrument. Suhm does not describe or suggest the features of claims 1-2 and 4-9 described above.

Claims 1-2, 5, 7 and 9 have been rejected under 35 U.S.C. 102(b) as being anticipated by US 20020099284 to Herrmann. Claims 1-2, 5, and 7 include the features of determining a desired position of the imaging unit at which X-ray image data shall be acquired based on a predetermined image acquisition plan and an actual position of an instrument, where the predetermined image acquisition plan is associated with optimal viewing directions and where the actual position of the instrument and the imaging unit is tracked by a tracking device. Claim 9 includes determining a desired position of said imaging unit, at which X-ray image data shall be acquired based on a predetermined image acquisition plan and an actual position of an instrument, tracking the actual position of the instrument and the imaging unit using a tracking device, determining position parameters of the imaging unit for the desired position, and positioning the imaging unit at the desired position by use of the position parameters. Herrmann is directed to a volume dataset of a subject being generated, and an image being generated from the volume dataset, where a location in the image is marked to identify a location at the examination subject, represented in the image. Based on the mark that has been set in the image by the method of Herrmann, a location characterizing unit can be adjusted relative to the subject so as to characterize a location at the subject which substantially corresponds to the marked location in the image. Herrmann does not describe or suggest the features of claims 1-2, 5, 7 and 9 described above.

Claims 10-14 and 20 depend from claim 1 and thus are also not anticipated by the cited art for the reasons described above.

Claims 15-19 include the features of a processing device for determining a desired position of said imaging unit at which X-ray image data shall be acquired based on a predetermined image acquisition plan and an actual position of an instrument, a tracking device for tracking the actual position of said instrument, a control device for determining

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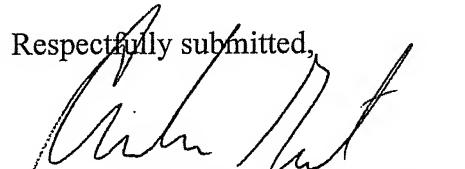
position parameters of said imaging unit for said desired position, and a positioning device for positioning said imaging unit at said desired position by use of said position parameters. For the reasons described above, none of the cited art describe or suggest these features.

In view of the foregoing, Applicants respectfully submit that the specification, the drawings and all claims presented in this application are currently in condition for allowance. Accordingly, Applicants respectfully request favorable consideration and that this application be passed to allowance.

Should any changes to the claims and/or specification be deemed necessary to place the application in condition for allowance, the Examiner is respectfully requested to contact the undersigned to discuss the same.

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Respectfully submitted,



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